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## Test 1649: Case International 9230 and Steiger 9230 (12-Speeds) Diesels

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# NEBRASKA OECD TRACTOR TEST 1649—SUMMARY 087

## CASE INTERNATIONAL 9230 DIESEL

## ALSO STEIGER 9230 DIESEL

### 12 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
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#### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—1048 rpm)					
198.63 (148.12)	2199	11.74 (44.44)	0.413 (0.251)	16.92 (3.33)	

Standard PTO Speed (PTO—1000 RPM)					
207.83 (154.98)	2097	11.85 (44.86)	0.399 (0.243)	17.54 (3.45)	

Maximum Power (2 Hours)					
218.20 (162.71)	1900	11.87 (44.93)	0.380 (0.231)	18.38 (3.62)	

#### VARYING POWER AND FUEL CONSUMPTION

198.63 (148.12)	2199	11.74 (44.44)	0.413 (0.251)	16.92 (3.33)	Air temperature 73°F (23°C)
174.25 (129.94)	2252	10.68 (40.44)	0.429 (0.261)	16.31 (3.21)	
131.59 (98.13)	2286	8.75 (33.13)	0.465 (0.283)	15.04 (2.96)	Relative humidity 69%
89.44 (66.70)	2320	7.04 (26.63)	0.550 (0.335)	12.71 (2.50)	
44.28 (33.02)	2350	4.93 (18.68)	0.779 (0.474)	8.98 (1.77)	Barometer 28.92" Hg (97.92 kPa)
0.38 (0.28)	2375	3.22 (12.18)	59.995 (36.493)	0.12 (0.02)	

Maximum Torque 628 lb.-ft (852 Nm) at 1800 rpm

Maximum Torque Rise 32.4%

#### DRAWBAR PERFORMANCE

#### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.*F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—5th Gear									
177.51 (132.37)	14127 (62.84)	4.71 (7.58)	2198	2.72	0.458 (0.279)	15.26 (3.01)	183 (84)	81 (27)	28.83 (97.63)
75% of Pull at Maximum Power—5th Gear									
138.50 (103.28)	10601 (47.16)	4.90 (7.88)	2268	2.14	0.493 (0.300)	14.18 (2.79)	184 (84)	88 (31)	28.81 (97.56)
50% of Pull at Maximum Power—5th Gear									
94.45 (70.43)	7059 (31.40)	5.02 (8.08)	2306	1.31	0.567 (0.345)	12.34 (2.43)	182 (83)	88 (31)	28.81 (97.56)
75% of Pull at Reduced Engine Speed—6th Gear									
138.40 (103.20)	10599 (47.14)	4.90 (7.88)	1842	1.98	0.441 (0.268)	15.86 (3.12)	183 (84)	88 (31)	28.81 (97.56)
50% of Pull at Reduced Engine Speed—6th Gear									
94.31 (70.32)	7060 (31.40)	5.01 (8.06)	1870	1.31	0.482 (0.293)	14.50 (2.86)	181 (83)	88 (31)	28.81 (97.56)

**Location of Test:** Tractor Testing Laboratory,  
University of Nebraska, Lincoln, Nebraska 68583-  
0832, U.S.A.

**Dates of Test:** June 10-14, 1991

**Manufacturer:** J.I. CASE CO. 3401 First Avenue  
North, Fargo ND 58102

**FUEL OIL and TIME:** Fuel No. 2 Diesel Cetane  
No. 53.9 Specific gravity converted to 60°/60°F  
(15°/15°C) 0.8399 Fuel weight 6.993 lbs/gal (0.838  
kg/l) Oil SAE 15W-40 API service classification  
CC, CD To motor 4.343 gal (16.440 l) Drained  
from motor 3.886 gal (14.711 l) Transmission and  
final drive lubricant Case IH Hytran Plus fluid  
Hydraulic lubricant Case IH Hytran Plus fluid  
Total time engine was operated 21.0 hours.

**ENGINE:** Make Consolidated Diesel Corpora-  
tion Diesel Type six cylinder vertical with turbo-  
charger and intercooler Serial No. 44577092  
Crankshaft lengthwise Rated rpm 2200 Bore and  
stroke (as specified) 4.488" × 5.315" (114.0 mm ×  
135.0 mm) Compression ratio 16.5 to 1 Displace-  
ment 505 cu in (8269 ml) Starting system 12 volt  
Lubrication pressure Air cleaner two paper ele-  
ments and aspirator Oil filter one full flow car-  
tridge Oil cooler engine coolant heat exchanger  
for crankcase oil, radiator for hydraulic and trans-  
mission oil Fuel filter one paper element Muffler  
vertical Cooling medium temperature control two  
thermostats.

**ENGINE OPERATING PARAMETERS:** Fuel  
rate 75.6-83.8 lb/hr (34.3-38.0 kg/hr) High idle  
2350-2450 rpm Turbo boost nominal 12-15.5 psi  
(81-106 kPa) as measured 15.5 psi (106 kPa).

**CHASSIS:** Type four wheel drive with duals,  
articulated Serial No. \*JCB0027357- Tread width  
rear 60.0" (1524 mm) to 130.0" (3302 mm) front  
60.0" (1524 mm) to 130.0" (3302 mm) Wheel base  
120.4" (3058 mm) Hydraulic control system direct  
engine drive Transmission selective gear fixed ra-  
tio with full range operator controlled powershift  
Nominal travel speeds mph (km/h) first 2.17 (3.50)  
second 2.63 (4.24) third 3.24 (5.21) fourth 3.93  
(6.33) fifth 4.76 (7.66) sixth 5.86 (9.43) seventh  
6.92 (11.13) eighth 8.37 (13.47) ninth 10.30 (16.58)  
tenth 12.51 (20.13) eleventh 15.14 (24.36) twelfth  
18.64 (29.99) reverse 2.85 (4.58), 5.15 (8.28), 9.05  
(14.56) Clutch multiple wet disc hydraulically power  
actuated by foot pedal Brakes caliper disc hy-  
draulically operated by foot pedal Steering hy-  
drostatic and articulated Power take-off 1000 rpm  
at 2098 engine rpm Unladen tractor mass 24106  
lb (10934 kg).

**REPAIRS AND ADJUSTMENTS:** No repairs  
or adjustments.

# **DRAWBAR PERFORMANCE** **MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>2nd Gear</b>									
163.74 (122.10)	25061 (111.47)	2.45 (3.94)	2223	9.45	0.492 (0.299)	14.21 (2.80)	182 (83)	76 (24)	28.75 (97.36)
<b>3rd Gear</b>									
178.54 (133.14)	23717 (105.50)	2.82 (4.54)	2046	8.09	0.463 (0.282)	15.09 (2.97)	183 (84)	76 (24)	28.75 (97.36)
<b>4th Gear</b>									
189.20 (141.09)	21714 (96.59)	3.27 (5.26)	1903	5.79	0.437 (0.266)	16.01 (3.15)	184 (84)	76 (24)	28.75 (97.36)
<b>5th Gear</b>									
191.67 (142.93)	17867 (79.48)	4.02 (6.47)	1900	3.92	0.432 (0.263)	16.18 (3.19)	185 (85)	82 (28)	28.83 (97.63)
<b>6th Gear</b>									
193.41 (144.23)	14539 (64.67)	4.99 (8.03)	1895	2.88	0.428 (0.260)	16.35 (3.22)	186 (86)	83 (28)	28.83 (97.63)
<b>7th Gear</b>									
193.41 (144.23)	12198 (54.26)	5.95 (9.57)	1902	2.31	0.427 (0.260)	16.38 (3.23)	188 (86)	84 (29)	28.83 (97.63)
<b>8th Gear</b>									
192.83 (143.80)	10013 (44.54)	7.22 (11.62)	1900	1.81	0.431 (0.262)	16.22 (3.20)	187 (86)	86 (30)	28.82 (97.60)
<b>9th Gear</b>									
192.73 (143.72)	8091 (35.99)	8.93 (14.38)	1900	1.65	0.431 (0.262)	16.24 (3.20)	188 (87)	88 (31)	28.82 (97.60)

## **TRACTOR SOUND LEVEL WITH CAB**

	<b>dB(A)</b>
Gear closest to 4.7 mph (7.5 km/h) 5th gear	78.0
Maximum Sound Level 4th gear	80.0
Transport speed—no load 12th gear	76.5
Bystander	—

## **TIRES AND WEIGHT**

**Rear Tires**—No., size, ply & psi (kPa)

**Front Tires**—No., size, ply & psi (kPa)

**Height of Drawbar**

**Static Weight with Operator**—Rear

—Front

—Total

## **Tested Without Ballast**

Four 18.4R38; \*, inner 14 (95) outer 12 (85)

Four 18.4R38; \*, inner 14 (95) outer 12 (85)

13.5 in (345 mm)

11772 lb (5340 kg)

12500 lb (5670 kg)

24272 lb (11010 kg)

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump inlet was maintained at 130° F (54° C). The drawbar pull in 2nd gear was limited to avoid tractor bouncing. The performance figures on this summary were taken from a test conducted under the OECD Code II restricted standard test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1649**, Summary 087, August 20, 1991.

LOUIS I. LEVITICUS

Engineer-in-Charge

K. VON BARGEN

R. D. GRISSO

G. J. HOFFMAN

Board of Tractor Test Engineers

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: yes

Maximum Force Exerted Through Whole Range:

12942 lbs (57.5 kN)

i) Opening pressure of relief valve:

NA

Sustained pressure at compensator cutoff:

2550 psi (176 bar)

ii) Pump delivery rate at minimum pressure:

29.0 GPM (109.8 l/min)

iii) Pump delivery rate at maximum hydraulic power:

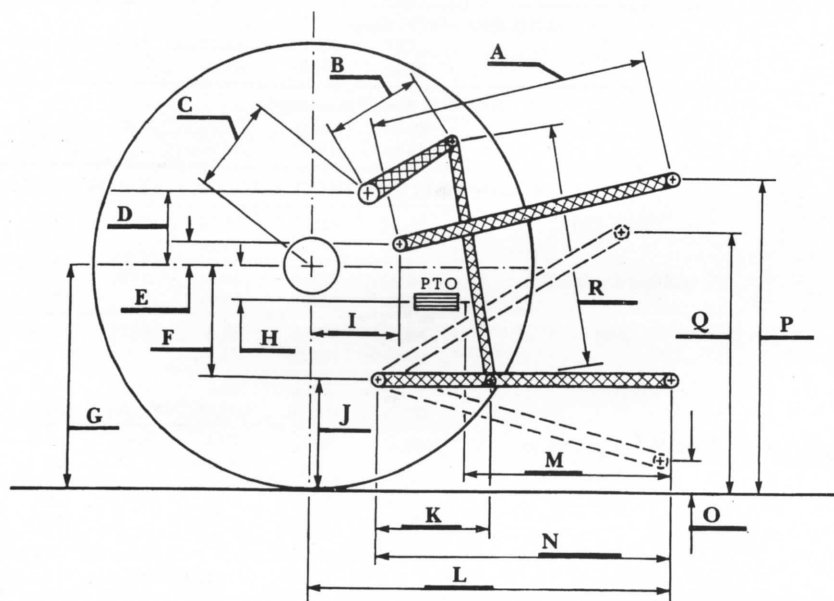
24.9 GPM (94.3 l/min)

Delivery pressure:

2350 psi (162 bar)

Power:

34.1 HP (25.5 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	29.1	740
B	21.0	533
C	25.6	651
D	25.1	637
E	11.4	289
F	9.9	251
G	32.3	820
H	2.2	56
I	22.8	579
J	22.4	569
K	23.0	584
L	52.2	1326
L'	57.2	1453
M	20.0	508
N	42.0	1067
O	5.2	132
P	44.4	1128
Q	37.6	956
R	37.8	959

L' to end of Quick Attach



Case International 9230 Diesel

Agricultural Research Division  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Darrell Nelson, Dean and Director